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SOIL CONSERVATION •

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☆ THIS MONTH ☆

THE COMPLETE WATERSHED PROGRAM IN FLOOD CONTROL

By Hugh Bennett

Page

75

SOIL CONSERVATION FORGES AHEAD IN THE SOUTHEAST

By Barrington King

83

BETTER-FED NATION STARTS WITH BETTER-TAUGHT CHILDREN

By Ellen Hartnett

89

NOTES FROM THE DISTRICTS

93

WELLINGTON BRINK

Editor

Art Work by

W. HOWARD MARTIN

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FLYING TEACHERS.—An air tour of the Clay County Soil Conservation District climaxed the conservation workshop for teachers held at Liberty, Mo. Eleven teachers, with an average of over 14 years of experience, took the course, which was sponsored by the district. The workshop was conducted at Liberty High School by the Northwest Missouri State Teachers College. The teachers had 6 hours a day of class and field work for 13 days. The college allowed two and a half credit hours for the work. The farms of the district cooperators were used as a laboratory. A. R. Mottesheard directed the workshop.

Cooperating in the course were representatives of the Soil Conservation Service, Extension Service, Production and Marketing Administration, and State Conservation Commission. Donald Pharis, Liberty, is chairman of the board of supervisors.

(Continued on page 95)



FRONT COVER.—This magnificent photograph by John W. Busch goes with Barrington King's article in this issue, "Soil Conservation Forges Ahead in the Southeast." It shows 4-year strip rotation of cotton followed by wheat and lespedeza on the farm of A. N. and Sam T. Means, in the Poplar Springs, S. C., community.

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Here the swollen Kaw took a vicious bite out of the rich farm land of Fred Grobe, in Douglas County.

THE COMPLETE WATERSHED PROGRAM IN FLOOD CONTROL

By **HUGH BENNETT**
Chief, Soil Conservation Service

IT IS a real inspiration to me as a soil conservationist to meet with you newspaper editors assembled here in Lincoln to consider the critical problem of flood control. It is a significant milestone, I think, in the Nation's march toward preserving its basic soil and water resources, when several hundred busy editors come together on their own initiative and at their own expense to discuss ways of achieving sound and effective flood control in this breadbasket of the Nation.

The recent flood catastrophe in Kansas and neighboring States has once more focused attention on the urgent need for doing the best we know how to prevent the recurrence of disastrous floods which every year somewhere in this area, as well as in other parts of this country, tear down with great destructiveness across productive farm land and through prosperous towns and cities. The effects of floods are very real to you people right here in Lincoln and throughout southeastern Nebraska after your experiences of May and June last year, and again this year.

What can be done—what must be done—to prevent the staggering losses in crops, in property, and even human life depends in large degree on the de-

termination and efforts of you people who are in this audience today.

Some among you may feel that we cannot afford the cost of flood control in these times of national emergency. As a civil servant, I did not come here to tell you what the Nation's policy should be in this regard. That is for you, the people, to say. But there are some things I can tell you.

First, the rivers out here did not wait until we had settled our score with the Communists before they decided to go on a rampage. We hope that neither we nor our children will live to see another



Once a comfortable farm home, now a shambles. The author sadly ponders the wreckage and the greater tragedy of which it is a part.

Note.—Dr. Bennett delivered this address at the Newspaper Editors' Flood Control Meeting, Lincoln, Nebr., August 11, 1951.

catastrophe like this last flood. But, unfortunately, we can be certain that, emergency or no emergency, costly floods in all probability will strike again next year, and the next—somewhere in Nebraska, Iowa, Kansas, Missouri, or other parts of the Nation.

Secondly, I can tell you that it is possible to control these floods. It is possible to eliminate almost completely the smaller and more localized floods, and it is practicable also to reduce greatly the damages from tremendous rainstorms that cause super floods like this last one.

No single method of flood control, however, will do the whole job. We have seen in this great flood, for example, how levees high enough to have withstood the largest previous floods of record were overtopped. On the other hand, we have also seen how the soils of our fields and pasture lands became so saturated with water after 2 months of heavy rains that they could absorb very little more from the final big rain. No, to meet all kinds of flood conditions, and to prevent or minimize flood damages wherever they occur, we must use every available method of control that we know about.

We must develop a sound, coordinated plan for every watershed to assure a properly balanced and truly effective attack directed toward prevention of flood damages. The day of piecemeal flood control—where only a part of the damage in a watershed is considered—is rapidly drawing to a close.

Our efforts to control floods must begin where the rain strikes the ground. Every additional gallon of water that we can get into the soil by improving its intake capacity with conservation measures means 1 gallon less contributed to the flood flow. Let no one mislead you into believing that it is ever impossible to get more of the rain into the soil. No matter how much rain has already fallen, we have yet to find a soil on sloping land that does not have some water-holding capacity left. In other words, a soil is never completely saturated unless it is below the ground-water table, as in a swamp. Water will still go in along roots, and will penetrate through cracks in the ice of so-called "frozen soil." It is true that when the soil is comparatively dry it can take up many times as much water as it can after prolonged rains. But it is also a mathematical certainty that the soil can always take up some more water. Therefore, our first step in flood prevention, under all conditions, is to put the soil, as far as practicable, in a condition conducive to optimum water intake.

What excess water does run off the fields into the drainageways, we must slow down with small retarding structures and with other improvements in the watercourses. And what flows out of the creeks we will have to handle in the main river valleys by more imposing measures—engineering measures such as reservoirs and levees.

Our job of flood control, then, begins where the raindrop falls and it does not end until the water reaches the ocean.

The important problem now confronting all of us is to determine, in cooperation with each other, what kinds and combinations of measures are needed, watershed by watershed, to accomplish the most effective flood control we can afford. In doing so we must, of course, bear in mind our continuing need for irrigation storage, for power production, for municipal water supply, for pollution abatement, for preserving fish and wildlife resources, and especially the need for maintaining maximum agricultural production on fertile valley lands. Our watershed plans must provide not only for the control of floodwaters, but also for their conservation for beneficial use. In this connection, let us bear in mind that the limited number of available sites for larger reservoirs should, wherever possible, be considered with respect to multiple land and water needs before they are dedicated solely to flood control.

There are several reasons why sound and enduring flood control, aimed to benefit all the people,



This city bus rode 500 yards down the raging Kaw, ending its journey in a mad chaos of water, mud, and debris.



This corncrib floated in from another county, and now stands sentinel on a sanded area that formerly was a leading corn-producer in Kansas.

can be achieved only through a coordinated attack. The first of these reasons is apparent from the distribution of flood damages. Although some engineers may dispute what I say—and might even quote Webster against me—I submit that flood damages begin where the rain falls, regardless of what Webster may have thought about it. The crops on upland farms that are swept down by storms which cause great floods are just as truly lost as the crops on overflowed land in the valleys below. The soil washed off upland fields reduces the productivity of the land just as much as does deposition of soil by the water flooding over agricultural bottom lands along the rivers. Floodwater damages to agricultural lands in thousands of miles of small creek bottoms throughout our watersheds represent just as much loss per acre as flooding of the wide Missouri River Valley between Kansas City and St. Louis.

The Soil Conservation Service has just completed a preliminary survey of the storm and flood damages in Kansas and Nebraska during July. This is what we found: Losses of crops on upland farms amounted to approximately \$110,000,000. Losses of irreplaceable topsoil, the thin and fertile layer that sustains agriculture in this granary of the Nation, has been estimated at \$200,000,000. This figure is based on the differences we have found in crop yields with different depths of topsoil. Losses from floodwater and sediment in the creek bottoms and small stream valleys, above the points where anyone has yet proposed specific flood-protection measures, were estimated at \$102,000,000. The total of these three figures is \$412,000,000. Additional losses in Missouri, Oklahoma, Iowa, Illinois, and other neighboring States would bring the total probably to well over a half billion dollars in the one month of July.

Without in any way minimizing the staggering losses at Kansas City and along the major river valleys, we believe that these astounding damages along the tributaries are convincing evidence that a flood-control program aimed only at downstream cities and river bottoms is only a partial flood-control program and not one designed to benefit all the people who have suffered losses.

Let me give you another reason why this country needs a coordinated and complete flood-control program extending to every acre all the way down to the sea. To be sure, super floods like this last one are comparatively rare events. I am told that the flood discharge at Kansas City far exceeded the highest ever previously experienced, which was back in 1844. When an event exceeds all previous expectations and wreaks such havoc, it not only makes banner headlines, but it becomes an historic classic. It gets into our memories and textbooks. People come to look on it as characteristic rather than something rare—or unique. Actually, if one spreads the enormous damage caused by this flood over all the years between such rare events, the average annual loss is considerably less than the damages from all the smaller local floods that occur year after year in the smaller watersheds throughout Kansas, Nebraska, Missouri, Oklahoma, Iowa, and Illinois. A typical example of the smaller, more frequent floods has occurred here on Salt Creek these last 2 years. You local people are only too familiar with this kind of flood.

Our surveys show that 75 percent of our average annual flood loss has occurred above the main river valleys and large cities. This, of course, is due in no small measure to the fact that a substantial part of our major river flood plains and cities are already protected by levees and major reservoirs, for which credit is due primarily to the

effective work of the Army's Corps of Engineers.

I can give you still other reasons why a coordinated approach to flood control is essential. Soil erosion on watershed lands must be brought under control to protect downstream flood-control works. We must control erosion to protect our flood-control reservoirs from rapid silting and loss of effectiveness. We must control erosion to prevent the silting of stream channels, which further reduces their flood-containing capacity. We must control erosion, moreover, to prevent overwash of infertile sand and poor subsoil material on our productive bottom lands. But even more important than all of these, we must control soil erosion if we are to maintain the base for our agriculture, our national strength and defense, and, indeed, to prevent our civilization going the way of many great nations of the past which failed to take care of their agricultural land. (1)

So that there may be no mistake about where we stand in the Soil Conservation Service, let me reaffirm:

1. That we believe, and our widely multiplied experience confirms, that flood control is a job which begins where the rains fall and the runoff starts—that is, in the fields and pastures and forests, and ends only when the runoff has safely reached the ocean.

2. That we believe wholeheartedly in coordinated planning and treatment of entire watersheds and drainage basins in cooperation with the Army Corps of Engineers, with soil conservation districts, with watershed associations, and with all other Federal, State, and local agencies that have a responsibility in land and water management.

3. That the work of the Soil Conservation Service is in the fields and pastures and wood lots and on the upstream tributaries of the major rivers. Our job is first to assist landowners and operators to use their land within its capability, and to treat it with sound conservation practices in accordance with its needs. Beyond this, our job is to assist organizations of local people to install upstream flood-prevention measures, such as small retarding structures, gully plugs, and channel improvements. If, through such a program, we can cause the water which falls on the lands in the upper watersheds, or even a considerable part of it, to delay its race to the sea, we have by that action won part of our objective—completed part of the job of flood control.

But this kind of program alone will not prevent flooding of the main river valleys and the cities in them.

I understand that some of your local papers have editorially attributed to soil conservationists claims to the effect that the amount of money spent on large flood-control reservoirs would, if spent in the watersheds, dry up the rivers. Well, I don't believe any employee of the Soil Conservation Service ever thinkingly made such a statement. If he did, I repudiate it here and now. In my opinion additional controls such as reservoirs, levees, and other main channel protective works will be needed to safeguard the flood plains of our major rivers against such disasters as we have just experienced. This trunk channel job is the responsibility of the Corps of Engineers, which has ably fulfilled its part of the job for more than a century.

4. We believe that coordination of the river-control and watershed programs was the intent of Congress when it passed the Flood Control Act of 1936. We believe it is still the intent of Congress. We do not believe that Congress intended one program to be in any sense a substitute for the other, but rather that they should be complementary parts of a single job.

The Flood Control Act of 1936 and subsequent acts provide all the authority needed by the Department of Agriculture and the Corps of Engineers to work together in planning and carrying out a complete program for alleviating flood damages and conserving soil and water resources. Such watershed and river-basin plans for flood control, as we see it, involve three principal types of operations, namely:

(1) *Land treatment.* Our conservation farm and ranch planning is based on the principle of treating every acre of land according to its need, and using each acre according to its capabilities (that is, for cultivated crops, grass, timber, or wildlife). It also includes safe and orderly disposal of runoff water originating on the farm or ranch. Land-treatment measures prevent erosion, maintain soil fertility, conserve water by storing it in the soil, prevent damage on the farm from the erosive action of rainfall and runoff, and reduce the sediment loads of creeks and rivers. Land-treatment measures are now being rapidly installed by landowners throughout this area—as well as other areas—under the programs of the locally organized soil conservation districts, aided by technical assistance

from the Soil Conservation Service and by other forms of assistance, such as educational and financial. We have ample authority for this part of the program, but funds available for technical assistance fall far short of the need, if we expect to achieve substantial flood protection in the next 10 or 15 years.



Highways were undermined and washed out, fences and power lines destroyed. In the background, here in Douglas County, a sheet of sand was deposited.

(2) *Upstream engineering* for water-flow retardation and channel stabilization. This phase of the watershed plan involves work on the tributaries and waterways to control or retard runoff from neighboring farms. These measures alleviate damage to the agriculture of the smaller watersheds above the downstream engineering works. They slow runoff and stabilize sources of sediment in upstream channels.

We are doing these things now just as rapidly as our facilities permit. They represent water-control operations over and above what is ordinarily done through the farm-land conservation job.

(3) *Downstream engineering* for flood control. This comprises the work done on the major waterways to control runoff after it has reached the main stream. It alleviates urban damages and damage to agriculture in the flood plains lower down the major rivers. This major engineering is the responsibility of the Corps of Engineers.

There you have, as we understand it, a coordinated approach to flood prevention and control—a program that protects the farmer or rancher of the

uplands as well as of the lowlands, while protecting the cities, too.

Congress has so far authorized watershed programs, including land treatment and upstream engineering, on 11 watersheds in different parts of the country. Many of you no doubt are acquainted with the work under way on the Little Sioux watershed of northwestern Iowa, and the Washita River of Oklahoma. We are carrying out the works of improvement in these two flood-control projects—as in the other nine—primarily through the farmers' soil conservation districts. In all instances our work is coordinated with the authorized work of the Army Engineers farther downstream.

We need go no farther than the city limits of Lincoln—into the Salt-Wahoo watershed—to find what is to my mind a splendid example of the coordinated watershed approach to flood control. Here is a striking illustration of effective community cooperation, including the Salt-Wahoo Watershed Association, which is made up of city people and farmers in soil conservation districts; the Soil Conservation Service; the Army Engineers; and other local, State, and Federal agencies.

Joint studies of this watershed are being made now by our Service and the Army Engineers under authority of the Flood Control Act of 1936. We hope that this study will lead to authorization of a coordinated program for flood control in this area similar to that already authorized in the 11 other watersheds mentioned. I think the soundness of this cooperative approach was well stated in the progress report on the joint watershed survey made by the Army Engineers and Soil Conservation Service. The report pointed out that the two agencies had one objective in this study—that is, to prepare an over-all plan for the entire watershed which, quoting from the report, “will represent from the standpoint of both agencies the best plan for the basin as a whole which is practicable within the limits of economic feasibility, and one which both agencies can recommend and support without reservation.”

“Both agencies feel,” the report added, “that this objective can best be realized by a joint study which will produce a single plan mutually developed by both agencies rather than a compromise between two individual plans developed by the two agencies acting independently.”

The Salt-Wahoo undertaking also illustrates the importance and effectiveness of local group action

in watershed planning and development. Here, as elsewhere, the local soil conservation districts are taking an important part in the permanent watershed program. As the principal organization through which soil and water conservation measures are being applied to the land by individual farmers the country over, it is only logical that these districts also should be called on to serve directly in such flood-control activities in the public interest.

By the same token, the Salt-Wahoo situation shows why there is a place for an advisory group, committee, or association like the Salt-Wahoo Watershed Association, which brings together the interests of farmers and city people. In other words, for a watershed-development program to operate successfully—in Nebraska, in Kansas, or anywhere else—the basic responsibility for that program must involve the people residing in the watershed. That means there must be a local responsible organization such as a soil conservation district, watershed association, or flood-control district, which is representative of all the interests in the watershed and which can act to coordinate the activities and services of all agencies and interests to formulate the necessary broad, flexible program for watershed development and protection.

We have found that the most efficient way of carrying the soil and water conservation job beyond the planning stage anywhere is through coordinated group action of the landowners and operators—with technical and other assistance from other sources. Group action is especially effective, and necessary, in dealing with problems of watershed extent. Soil conservation districts themselves, of course, are basically group-action devices; and their efficiency and success in this direction have



High ridges of flood-deposited soil material, scraped off Highway 24 in Douglas County; considerable floodwater was still trapped.

been proved by their rapid organization and growth. In only 14 years, approximately 2,350 such districts have been formed in the 48 States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. They now include more than four-fifths of the farms and ranches in the United States and three-fourths of the country's farm land. Fortunately, the area you editors represent is largely within soil conservation districts. Nebraska, for example, is one of 10 States completely covered by soil conservation districts. Kansas is not far behind with more than 99 percent of its area in districts; while Iowa is 95½ percent covered. If your county doesn't yet have a district, I recommend that you urge the local people to organize one.

Let me emphasize, however, that planning and application of the watershed program requires special technical skills. Downstream, as you know, the highest order of engineering skill is necessary for building big dams, main-channel stabilization works, and so on. Also, in the uplands technical know-how is required to plan and apply sound land treatment and upstream engineering measures. Such plans must be based on painstaking research and on wide practical experience. They must take into account the principles of hydrology, engineering, agronomy, land science, forestry, biology, and other related fields. Under varying conditions of climate, topography, and drainage, the wrong thing done, or the right thing left undone, on any part of a farm can do serious injury.

In no event can this watershed planning and treatment be accomplished overnight by some magic formula, although it takes heavy rains and excessive runoff only a few days, or even hours, to do irreparable damage to watershed land and property. Our conservation land-treatment and upstream-engineering activities are based, in the first place, on detailed land-capability surveys. They show, acre by acre, the needs and capabilities of the land in relation to combinations of such factors as soil, slope, rainfall, erosion, and so on. Our watershed plans involve the location of sites for small floodwater retarding structures, water-disposal systems, gully-control structures, stream-bank stabilization, and other upstream-engineering measures.

Our Soil Conservation Service technicians work out on the land cooperatively with farmers, covering entire farms, acre by acre, and field by field. We cannot depend on windshield surveys and office



This terraced slope, about 6 miles east of Richmond, Kans., held its own against the wrath of the Osage River flood. There was terrific erosion in the uplands where the land was not under the protection of soil conservation.

planning in doing a job of the complexity and magnitude of safeguarding the farm lands of the Nation. Nor can we have a ready-made plan including a fixed set of practices to slap on any farm or watershed. Land, and the behavior of the water that falls on the land, differs from watershed to watershed, from farm to farm, and from acre to acre. So every watershed and each parcel of land must be dealt with individually.

That, briefly, is how we go about the treatment of agricultural land for effective soil conservation and flood control. We have developed a unique combination of soil conservation, engineering, and vegetative practices designed to dispose of surplus water safely while making the best practical use of the water that otherwise would be wasted. For the first time in history, we are going into the small watersheds to do everything possible to provide relief from recurring flood damages.

Splendid examples of the effectiveness of tributary stream flood control can be cited from the experience of the Soil Conservation Service.

On May 16, this year, Sandstone Creek with a watershed of 65,000 acres, southeast of Cheyenne, Okla., had $4\frac{1}{2}$ inches of rainfall. The watershed

had been treated for soil conservation and flood control. The runoff water did not even come up to the draw-down pipes in the retarding dams. None of the permanent pools were filled. Sandstone Creek, which had been noted for its flooding, contributed practically no flow to the Washita River, while other similar creeks of the locality were flooding and doing great damage.

Farther west, near Clinton, during the same wet period, the Barnitz Creek watershed received about 13 inches of rain within 24 hours. Within its watershed of 4,000 acres four detention structures had been built and the usual surface treatment of terracing, regrassing, contouring, and the like had been completed. The creek stayed within its banks while similar neighboring creeks did great damage with this same precipitation.

Rates of silting have been measured two or three times in some reservoirs—first, before any conservation work was done on their watersheds and again after a substantial part of the needed conservation measures had been applied. Treatment of about 30 percent of the watershed resulted in a 24-percent reduction in the silting rate of the municipal reservoir at High Point, N. C.

In contrast, it was found that more intensive use of land for row crops and lack of conservation measures caused an increase of 20 percent in the silting rate of the water-supply reservoir at Decatur, Ill.

In conclusion, let me assure you that with whatever resources we are provided the Soil Conservation Service will continue to work toward sound soil conservation, wise land use, and protection of the Nation's water resources as well as its land. We will do this in cooperation with local, State, and Federal agencies, or with any other organizations and groups which have like objectives. In working toward the permanent solution of our water problems, the Service will continue to give full consideration to all beneficial water uses, including those for recreation and wildlife. Also, the Service will continue to encourage conservation districts and other conservation organizations to use, to the fullest extent practicable, all available assistance from public and private sources.

Our men throughout the field are acquainted with the principles I have mentioned and I am sure you may count on their living up to them to the fullest possible extent. We will actively cooperate with soil conservation districts and other similar groups. This, together with the positive support of agencies and community leaders like those represented here, who are in a position to help, will expedite the conservation program throughout the country.

We have the knowledge of how to do the job; the conservation tools have been perfected and tested; we have an organization equipped not only with the necessary technical skills, but with the knowledge and understanding to work with local people—individual farmers, community groups, organized districts and associations, city people, and in-



Harvest this year will be zero from this field, which normally produces 80 to 100 bushels of corn per acre. It is near Lawrence, Kans.



Edge of 3-foot sand deposit on farm of F. V. Lewis, several miles northwest of Lawrence. This stretch, at depths of 6 to 36 inches, covered about 200 acres on this and four adjoining farms. It is clean, water-assorted sand of low fertility. Some of the land can be improved by plowing up the darker-colored, rich, alluvial material and mixing it with the covering sand. Some of the thicker deposits of sand may need to be dumped into nearby depressions.

dustries as well. As a Nation we have no excuse for not doing the job of conserving our basic soil and water resources; indeed we dare not shirk it, because our individual and national security, peace, and prosperity depend on it.

WOMEN TAKE A HAND.—Soil conservation is no longer—if it ever was—a stag party. At the annual convention of the Minnesota Association of Soil Conservation Supervisors at Winona last February, the ladies almost took over.

Mrs. Koren Johnson of Albert Lea was there to tell the conference about the Daughters of the Soil, a new auxiliary which has been doing a splendid educational job in Freeborn County.

Mrs. M. M. Hargraves, then State president of the League of Women Voters, urged wives of supervisors to participate wholeheartedly not only in soil problems but in all public questions.

Mrs. Doris Wyman, State extension worker, gave a splendid talk on women's activities in agriculture.

A large number of supervisors brought their wives to the meeting and that accounted in large part for the success of the Winona gathering.

—FROM *The Minneapolis Star and Tribune*

TACKLING DOWN THE ROADSIDE.—The Limestone Valley (Ga.) Soil Conservation District has entered into a memorandum of understanding with the Georgia Highway Board whereby State highway rights-of-way through the district will be vegetated. The memorandum provides that appropriate types of vegetation required in different locations will be used to control erosion and to beautify the rights-of-way.

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Completed pond of J. A. Harmon provides recreation as by-product of good land use.



SOIL CONSERVATION FORGES AHEAD IN THE SOUTHEAST

REVOLUTIONS—even in far-away places—are usually accompanied by screaming headlines in our newspapers. But a revolution has been going on throughout southeastern United States for 18 years that a lot of people right in the midst of it don't even know about.

To be sure, it's a revolution on the land—a change in land use, farming methods, crops, and the attitude of the people toward their stewardship of the land. And it is being carried out through democratic processes in local soil conservation districts. But in the final analysis, its effect on the economy of the region—on its farming, its business, its schools, its churches, its homes, and the health and happiness of its people—may be much more far-reaching than many revolutions that are heralded with blaring headlines.

George DePass, Spartanburg, S. C., attorney, who operates a Hereford cattle farm, recently referred to the work the Soil Conservation Service has done in the area as “the greatest revolution in the economy of the South since Eli Whitney invented the cotton gin.”

“The Soil Conservation Service came along at a crucial time in the life of this section,” DePass

By BARRINGTON KING

said. “Our land was worn out with cotton farming, but it responds wonderfully to grass.”

There is hardly a community in the Southeast that hasn't felt the revitalizing effect of this revolutionary ferment. You can pin point these communities in every State and in almost every county in the Southeast. But let's take a look at two typical communities in the part of the Southeast where the revolution began in 1933 with a demonstration on the land of a radically new approach to agricultural problems, based on the simple principle of using land within its capabilities and according to its needs.

The Poplar Springs community in Spartanburg County and the Fork Shoals Road community in Greenville County are located in the Piedmont area, where one of the first erosion-control demonstrations of the Soil Conservation Service was set up. The area was selected because of the severe erosion that had occurred during more than 100 years of row-crop farming, when cotton and corn were grown year after year on the same sloping land and gullies were accepted as the natural result of cultivating the soil.

It's a different story today. The land is covered with a blanket of green. Grasses and legumes that

Note.—The author is chief, regional division of information, Soil Conservation Service, Spartanburg, S. C.



Before the arrival of conservation at Poplar Springs the Berry Gully was one of the depressing "sights."

had never even been heard of by most of the farmers 15 years ago are discussed with easy familiarity in ordinary conversation. Suiter's grass (tall fescue), sericea lespedeza, kudzu, Caley-peas, Ladino clover, reseeding crimson clover, orchard-grass, and many other plants adapted to varying conditions have completely transformed the appearance of the land—actually resurrected it from a condition of essential abandonment.

Farmers still grow cotton and corn in these communities. But they're not satisfied with a half bale of cotton and 15 or 20 bushels of corn to the acre. They grow their cotton and corn in systematic contour strip rotations and are getting a bale to a bale and a half of cotton and 60 to 100 bushels of corn to the acre. They are getting larger total yields on fewer acres and they're using their other lands more and more for pasture and hay. Moreover, seed of soil-conserving grasses and legumes have become an important cash crop in the rapidly expanding soil and water conservation program.

The momentum of soil conservation has increased tremendously in the last few years. It's not only farmers who are talking about the land in new terms. The merchants, the bankers, the lawyers, are thinking about the land in new terms too. Many of them are buying land and developing it for cattle. Rural ministers are preaching soil conservation from their pulpits. Courses in soil conservation are taught in urban as well as rural schools.

W. D. Buffalo, manager of the Security Seed and Feed Co. at Greenville, S. C., said, "Grass-seed sales alone have turned this business from an unprofitable to a profitable undertaking.

"When I came here 5 years ago, we were buying Ladino clover seed in 25-pound lots. This year we have unloaded 40,000 pounds of Ladino clover seed. During the same period, production of tall fescue seed has gone from nothing to 123,000 pounds, sericea from 100 or so pounds to 30,000 pounds, and ryegrass from 15,000 to 220,000 pounds.

"Granade (H. Granade, SCS work unit technician in Greenville County) and his group have been almost entirely responsible for this spread of grass in our county. It's like building a house. You have to build it before you can live in it. We've reached the stage of living in it now."

Charles Kellett, who operates a general store in the Fork Shoals Road community, started a seed-cleaning plant in 1947. Last year he cleaned 50,000 pounds of fescue seed alone. This year he expects to handle a lot more than that. Business was brisk at the store, too, and Kellett answered questions while he made change for his customers.

How much business did he do in the seed-cleaning plant? Kellett went to the safe and got out a copy of his income-tax report, while his wife waited on the customers. The report showed that he had collected \$4,936.20 on his seed-cleaning operations. So Uncle Sam made a profit on the seed business too.

"It looks as if people are in this new kind of farming to stay," Kellett said in explaining how he happened to get into seed cleaning. "They were having to carry their seed away for cleaning, so I figured I might as well get in on the deal."

As Charles Kellett went back to his customers at the front of the store, his father, W. M. Kellett, leaned back in his chair and continued the conversation. "What really started the whole thing," he said, "was this SCS fellow Granade. He came out here and showed the people all the different kinds of grasses they could plant. He's the one who is responsible for it in this section."

Kellett's father and brother are cooperators in the soil conservation district program. J. P. Kellett, the brother, bought a farm in 1939 and operated it under a CCC camp plan. He later bought another farm and had a conservation plan made for it. When he bought his third farm, he started a dairy and now wholesales Grade-A milk.



Strip cropping on farm of Mrs. Nellie Hopkins, Fork Shoals community.

"There's not one farmer in 500 who can plan his farm and put in terraces, waterways, and other conservation practices like they ought to be," he said. "My grandfather owned the first place I bought and figured if he got 8 or 9 bales of cotton

on 20 acres, he was doing pretty well. With strip rotations of small grain, lespedeza, and cotton, I make a bale to a bale and a half to the acre."

Charles Kellett's seed-cleaning plant is just one example of an entirely new industry that has developed as a result of the soil conservation program. *There are a half dozen such plants in Greenville County alone. Actual records show that more than 600 such plants have sprung up in the 9 Southeastern States and the number is rapidly increasing.*

And back of the seed-cleaning operations is a still larger business, the production and marketing of the enormous volume of seed that farmers are producing in this new farming program now sweeping across the Southeast. Estimates of Soil Conservation Service technicians working with farmers out there on the land in 400 soil conservation districts show that more than 300 million pounds of grass and legume seed, kudzu crowns, and grass stolons were produced in the Southeastern Region last year.

These estimates reveal that from two-thirds to three-fourths of the total production was on farms whose owners are cooperating with their local soil conservation districts in carrying out complete soil and water conservation programs. Many of the kinds of seed produced in greatest quantity—such as blue lupine and Suiter's grass—originally came from stock distributed to farmers by Soil Conservation Service nurseries through local soil conservation districts for seed-increase plantings.

George DePass, the Spartanburg attorney quoted earlier, who has 250 registered Hereford cows on his Quarter Hereford Ranch near Spartanburg, said if the Soil Conservation Service hadn't done anything but introduce and spread the use of Suiter's grass, it would have more than paid for itself.

"Until 9 years ago, when I started cattle farming, I operated a \$10,000 cotton farm with \$2,000 worth of equipment on it," DePass said. "Today, with 400 acres of fescue (Suiter's grass) and the other soil conservation improvements, I have a \$40,000 farm with \$50,000 worth of cattle on it."

Henry J. Winn, vice president and trust officer of the First National Bank of Greenville, S. C., recalled conditions of only a few years ago—conditions which most people have forgotten about in the swiftly changing agricultural pattern.

"Until 15 years ago," Winn said, "a farmer would put a fence around the sorriest piece of land



Charles A. Lett has a thriving seed-processing business as result of Fork Shoals conservation boom.

he had, call it a pasture, and pay no more attention to it. The Soil Conservation Service came along and proved to farmers that they could establish adaptable grasses and legumes that were not only good for the land, but provided abundant grazing.

"This has stimulated the development of cattle raising and farmers have become diversification minded. They are now raising less cotton, more feed and cash crops of various kinds, and have come to realize that cattle have become an important cash crop in this section.

"Through the efforts of the Soil Conservation Service, there has been developed a year-round grazing program of fescue, Ladino clover, and other plants which have tremendously benefited the farmers of this section. It's not limited to this area, though. These grazing crops have resulted in the development of sizable herds of cattle throughout the entire Southeast."

S. B. Huff, chairman of the board of supervisors of the Greenville County Soil Conservation District, is community leader of the Fork Shoals Road community, which includes 87 farms, comprising 8,918 acres. Huff's home is located in a grove of huge oak trees. Under the spreading branches of these 150-year-old giants many community meetings and social gatherings are held. The spacious lawn was the scene of a picnic arranged by the supervisors when Chief H. H. Bennett of the Soil Conservation Service visited the community recently to observe progress of the work.

Preceding the picnic, the group—the Chief, Jim Sargeant, and others—attended services at the

Standing Springs Baptist Church and heard a forceful sermon on soil conservation by Dr. Robert W. Jackson, who in addition to serving as pastor of the rural church is assistant professor of religion at Furman University in Greenville. Dr. Jackson emphasized in his sermon that productive soil is one of God's gifts to man and as such deserves the care of faithful stewards.

"No matter where we live or what we do, we can never get far away from the soil," he said. "Whether a man lives in a rural area or in a penthouse in New York, he is dependent upon the soil. . . . When we realize that the soil is a gift of God and that it takes from 400 to 1,000 years to build a single inch of topsoil by natural processes, we realize that we face a solemn obligation in the treatment of our land. The soil is very precious and is the basis of our physical existence."

As an indication of the effect that soil conservation has had on the religious phase of community life, Huff points out that practically every rural church in the area has built a home for its pastor and that most of them have enlarged or are preparing to enlarge their church plants.



Hugh Bennett, S. B. Huff, sericea, at Fork Shoals community.



Bermuda makes greedy grazing by Brown Swiss and Holsteins on the Maddox Brothers farm in Fork Shoals community.

In the Poplar Springs community of Spartanburg County, Jake Bridwell, community leader and member of the board of supervisors of the Spartanburg Soil Conservation District, says that his community group worked together so well in soil conservation activities that they pitched in and built a parsonage for the Reverend C. C. Nanney, pastor of the Poplar Springs Baptist Church. Bridwell himself donated the land, and members of the group donated most of the material and did the actual construction work. The Poplar Springs group includes 44 farms, comprising 3,027 acres, cooperating in the soil conservation district program.

"When we learned to work together in soil conservation, we found that we could work together in other things too," Bridwell said. "We have developed pride in our community."

The community spirit shows itself in many ways. Homes have been painted and home grounds have been beautified. Large signs have been erected on each road leading into the community reading, "Entering Poplar Springs Community. Organized to Build a Permanent Agriculture." A couple of years ago, the soil conservation group put up money for prizes in a rural-mail-box contest, sponsored by the local home-demonstration club.

Arthur Harmon has a beautiful home on a pine-covered knoll beside a large fish pond that sparkles like a gem in the grass-covered countryside. The entire inside of his home is paneled with 27 different species of trees, all harvested from his own farm.

Ward Crimm, owner of Poplar Springs Farm, has developed one of the finest herds of dairy cows in the entire country.

In 1948, the Poplar Springs community won a combine as first prize in a community soil con-

servation contest sponsored by the Spartanburg *Herald-Journal* in six counties in its circulation area.

The first contest was so successful that supervisors of soil conservation districts through the area decided to conduct a second community contest. Ninety-eight local communities, comprising 1,469 farms, are competing in this second 2-year contest for prizes totaling more than \$21,000 offered by local merchants, textile mills, and other business firms.

H. C. Arthur, manager of the A. N. and Sam T. Means farm in the Poplar Springs community, says, "Soil conservation has had more effect than anything else we've ever done in this country. We used to build terraces with a light terracing machine and every time there was a hard rain, we'd expect some of them to break. Now with strip cropping and meadow strips, we don't worry any more about it.

"I've planted 14 crops of cotton here. We used to have 200 acres in cotton. Now we have 100 acres of cotton and 100 Hereford cows. Even with the boll weevil, we average a bale of cotton to the acre."

Farmers who once rarely ever got around to visit among their neighbors now meet and work together regularly. A community that was once unknown outside of its own local area has entertained visitors from many foreign countries—visitors from China, Japan, Burma, India, Switzerland, South Africa, England, Australia, France, and Mexico. They came to Poplar Springs to see what kind of conservation program a community can build when neighbors work together.

A. D. Madge, secretary and assistant treasurer of the Pacolet Mills in Spartanburg County, was so impressed with what was being done at Poplar



Country churches prosper in the presence of soil conservation. The Poplar Springs Baptist Church is typical.

Springs that he bought a farm there 2 years ago and makes his home in the community, although it is 20 miles from his office at Pacolet. He takes an active part in the life of the community, has a district plan on his farm, and has developed a herd of 44 Hereford cows.

Even before he bought the place, Madge called on A. H. Skardon, SCS work unit conservationist in the community, for advice on the possibilities of the land. "I had no previous farming experience," Madge says, "but Skardon held my hand all the way and he has done a wonderful job of advising me what to do at every step."

As a mill executive, Madge is thoroughly familiar with the industrial revolution that has taken place in the Southeast during recent decades. And he is equally enthusiastic about the agricultural revolution taking place in the soil conservation districts of the region.

Madge sees wonderful opportunities for development of marketing facilities and supplies to meet the needs of the growing livestock development throughout the Southeast.

Actually, the revolution has just begun, he says, and the fight against erosion will require constant vigilance—maintenance, like anything else.

"I can sit in my office and see the Pacolet River," he says. "After a hard rain it runs yellow or red with eroded soil. We've got to keep fighting in every community till we get the job of soil conservation done on every acre of land."

"That's what we're trying to do in the Poplar Springs community. And we're going to make it the finest community in the world."

And some misinformed people have said that soil conservation is all right but we will never get the job finished at the rate it has been going. Why don't these wise fellows go down into Spartan-

burg and Greenville Counties and see for themselves what good progress is being made? Nearly 150,000 acres have already been treated for soil conservation—a rate that is a highly encouraging accomplishment, especially for these small, highly industrialized counties. It's truly a revolution on the land!

GRANGE SPONSORS CONTEST.—Five individual cups and a district cup are to be awarded by the Maine State grange to the supervisors and the district that does the best job in the year. The contest will be conducted through the State Association of Soil Conservation Districts. Additionally, the State grange proposes to make soil conservation an annual project.

CHURCH GROUNDS PLANTED.—As a result of Soil Stewardship Sunday at Zion Church in White County, Ga., 35 of the 40 churches in the county are planning to landscape and plant grass on the church grounds this fall. The Reverend C. A. Hall, pastor, hopes to get all churches in the county to participate. Supervisors of the Upper Chattahoochee River district cooperated in making the stewardship Sunday a success.

AIR TOURS.—Two air tours to provide farmers and others with a bird's-eye view of conservation on the land were held as a part of Kentucky's Conservation Week last July. Paying passengers numbered 711. Pilots estimated that 90 percent were farmers and 75 percent of the passengers were making their first flight.



GREEN PASTURES ZOOM.—With Vermont setting the pace, New England's 1951 green-pasture program boasts 3,482 participants. This is a gain of 466 over 1950 and 715 over 1949. There is increased enrollment in every State except New Hampshire. Vermont leads with 1,185 participants, 289 more than last year. Maine made the next largest gain, 219 over the 1950 total, but Massachusetts has the second largest total enrollment, 914 which is 11 more than last year. New Hampshire, Connecticut, and Rhode Island follow. Rhode Island staged a strong spurt this year by more than doubling its 1950 total. This year it has 127 participants, as against last year's 63.



Ellen Hartnett

BETTER-FED NATION STARTS WITH BETTER-TAUGHT CHILDREN

By ELLEN HARTNETT
Community College, Drake University

AMERICA has never been in greater need of citizens who can think clearly. Time was when the so-called educator drifted in the clouds, while the administrators pointed with pride to the "Science with Practice" placards over entryways. However, inside the classroom the college professor, protected from the world of reality, continued to float in the clouds and very seldom realized the importance, or even the existence, of grass-root problems.

Today the college situation is gradually undergoing a face lifting. We are much more interested in the individuals who come to us for an education than the subjects we teach. We are also developing courses in our institutions which will help to meet the need of our people.

In America today we are very much concerned about being a well-fed nation and we are also interested in helping to ease the hunger pains of our neighbors. With these objectives in mind, our colleges and universities are developing courses in conservation education.

Our conservation course in the Community College at Drake University, Des Moines, Iowa, has developed from a felt need. Last year I taught this course in three different locations in Iowa. All of my students were teachers. Some were working on certificate renewals and needed college credit; however, the majority of the students were more interested in getting new techniques for teaching, and in becoming professional, well-prepared teachers.

In two of the instances the teachers came to class 3 hours in the evening, 1 evening each week. Because I have been a teacher, I knew that they were

already weary from work before the class started; therefore, my ultimate goal in the course was to send a better teacher back to the classroom each week. All of the assignments were designed for the classes they would meet the very next morning.

The first conservation lesson in my course deals with "Saving the Teacher." In this first lesson I try to give as many helps as possible in order that the teacher will be able to do her best work.

Since we are still working to improve teacher standards, our State still clings to a stereotyped course of study in conservation. This will not be necessary when we have had an opportunity to give each teacher a more adequate training program. Children and well-prepared teachers rebel against course-of-study details because they know that the conservation needs of one community are not necessarily the needs of another community.

Of course, background is important and such information cannot be looked upon lightly. We Americans once had custody of 1,900,000,000 acres of land, over half of which was suitable for croplands, pasture, or range. Some 40 percent of it was virgin forest, with the remainder natural desert and mountaintops.

Today our story is a different one. We have only 17 percent of that 40 percent of timber left. The Soil Conservation Service estimates that our total cropland is today about 460,000,000 acres. It is stated that 3,000,000,000 tons of topsoil wash or blow away from American farms every 12 months. Now, these are facts we can't ignore, but how can we get facts taught in a way to create interest, enthusiasm, and a desire to do something about such a situation.

Well, first of all, we try to teach the teachers to find the interests of the children. We believe that children have definite interests and that they will be more likely to learn something usable if they are permitted to help select the problems they wish to explore.

Next, we train teachers so that they will not require every pupil to study the same topic. Once student interests are explored we are ready to develop work groups and find particular interests within groups.

Purposeful planning makes it possible to combine conservation education with other subjects. Correlation is a must in any good teaching. We do not teach subjects in an unrelated way today. We fit each mosaic into the pattern until we have a well-rounded curriculum and eventually we also have arising unique events which show originality of the child in relation to tasks.

Spontaneous interests are encouraged. A tree outside a school window may become an inspiration. A bird's nest, in one instance, drew interest one way. The teacher seized this spontaneous interest and planned a unit of work with the children. Science, writing, creative art, and music were all combined as children were encouraged to use many media of expression.

Many activities, which included the study of temperature, climates, and care of buds, developed.

The children's drawings and writings were used in developing a program. A home-made movie, a puppet show, and some original songs gave a release to expression and stimulated a valuable experience for the children and patrons.

We have found that most teachers do not fully utilize the resources of the community. On giving a few helpful hints, however, we found teachers and children were able to take advantage of opportunities within the school district. Patrons became more interested in contouring and other conservation practices after the teacher and children presented a program on the subject. One farmer invited the class to watch him plan a contour, and the older boys actually helped with the work. Of course, they told their parents about the project. Soon other contoured fields began to appear.

Conservation programs must be expanded beyond the four walls of the classroom. When teachers provide a variety of experiences in the classroom, we find children more likely to explore other avenues for learning outside of the classroom. We must learn to bridge the gap between those things which the child should learn and those things which he wants to learn.

We do not try to mold a particular type of teacher in conservation education. Instead, we try to stimulate each individual to find within himself

a potential to be developed. We try to develop an academic and professional interest in a scientific background. The material in this field of conservation is no more specialized in character than that of other fields. It forms a part of the total background for classroom teaching.

The scientific method of approach is very important in all who are teaching today, but perhaps conservation gives a better opportunity to practice it. Even young children enjoy the elements of scientific method in finding out new things by (1) questioning, (2) searching for explanations, (3) realizing explanations, (4) rejecting guessing, (5) repeating an experiment to check truth, (6) demanding more evidence, and (7) questioning accuracy.

In conservation there are many problems to be studied. Each class should define its problems in relation to the area. Methods of coloring the problems will also correspond to the demands placed by the group. It makes a difference, too, whether the problem comes from the teacher or the children. The American people have been called upon frequently to vote on questions of conservation. The attitudes built up by using the scientific method in the classroom may have a real bearing on intelligence in casting the ballot. "Scientific method is more important to the human race than collection of scientific facts," says Philip B. Sharpe. The scientific method is only about 400 years old, but it has already produced more facts and inventions than all the previous 400,000 years of human progress. What present scientific facts have done to our world, we see; what scientific method will do to the world of the future staggers the imagination.

At Drake University our teachers are taught the art of encouraging *discussion*. This is a vital part of conservation education. They are also taught to encourage *experimentation* and how to aid the children to visualize certain natural forces at work. *Observation* by excursion teaches many lessons that cannot be taught in the classroom. Reading occupies an important place in conservation education. Through these media the child and teacher continue to get facts, new and old.

We have found that many intelligent adjustments are made through our conservation programs. Here each individual dares to present his own interpretation upon the environment. His evaluation becomes important in respect to the requirements and needs he places on life.



Miss Hartnett conducting "classroom of the air" on 300-mile observation flight over western Iowa. She found it an excellent means of explaining contouring, strip cropping, grassed waterways, terraces, and farm ponds.

Here we have just a few examples of ways in which we can make our teaching meaningful.

The following timely story is told by a teacher of a one-room rural school. This young man, Charles Kaldahl, of Harlan, Iowa, caught the spirit of a whole community by magnifying the importance of participation. He reported as follows on "How My School Developed an Honor Code":

"Monday during language period, I asked the sixth and eighth grades to define the words 'honor' and 'code.' We discussed various meanings and finally arrived at the ones we felt adequate.

"Next, I explained what an honor code meant to me. This brought about quite an interesting discussion. I could see the interest building up. One boy in the sixth grade said, 'Why couldn't we make one?' meaning an honor code. So, for Tuesday's language lesson I assigned just that, An Honor Code, but I asked, first, 'How do you want to go about it?'

"The class suggested that we decide what should be in a code. Finally five parts were agreed upon: (1) Saving soil, (2) protecting wild flowers, (3) protecting birds, (4) conserving wild animals, and (5) protecting our forests. An eighth-grade girl suggested each student should work on one particular part of the code for the preparation. There are five in our sixth and eighth grades. Each was assigned to write a paragraph on the topic in the code which interested him most.

"On Tuesday I started the class by having the topic on soil read. Then the class and I worked together to condense it. This was a real job but every-

one worked hard. Finally, we all felt we could approve it. The group then appointed a chairman and a secretary. The chairman led the discussion, using the blackboard to chart the work to be done so that all could see the development of the honor code. The secretary then copied the completed paragraphs. By Wednesday the honor code was completed. Then the class decided to have the honor code printed on white oak tag and to post it in the classroom. This project alone was both interesting and revealing. Finally, the poster was completed with decorative cartoons drawn by a talented child. This poster displaying our honor code became a point of interest for many conservation lessons in the classroom and many discussions in conservation in the community.

"A district school program, for all in the community, centered around this activity.

"It is only fair to mention that the superintendent, F. E. Brouhard, of Shelby County, encourages our programs. Without his encouragement we could not have progressed so rapidly."

Another good example is the "Spring Unit," as developed by Catherine Malone, a teacher of Ottumwa, Iowa. Her class is on the primary level, but not too young to participate.

Here we have a summary of a unit as carried out in a city school.

"Our unit was introduced by the film, 'Spring on the Farm.' We studied farm animals and their babies.

"Each child made a booklet showing six farm animals and their babies, and wrote a short story for each picture.

"We made a class scrapbook, each child making a picture showing some 'sign of spring,' and writing a short story about it.

"We had a spring vocabulary on one of our boards, which helped with spelling. We are doing some creative writing, poems and stories.

"We are planning a tea for mothers on the Friday afternoon before Mother's Day. Our program is being developed from our unit."

A third good example has to do with a unit on wildlife, by Norma R. Ruby, Harlan, Iowa. It outlines as follows:

"Objectives:

1. To understand and compare wildlife as it existed in the early days of our country and as it is today.
2. To understand value of wildlife to man in (a) early days, (b) today, (c) the future.
3. To understand how carelessness of man has destroyed and reduced wildlife.
4. Other factors in destroying wildlife.
5. To understand the value and necessity of restoring wildlife.
6. How this can be accomplished, and is anything being done?

"Procedure:

1. Stimulating interests of children.
2. Creating a desire to learn more about animals and birds.
3. Finding all available materials—books, pictures, slides, excursions, etc., and putting at disposal for study and research.

"Topics for discussion:

I. Wildlife in Early Days

1. What do you know about wildlife in the early days of our country?
2. Value of wildlife to men of early days.
3. Why was wildlife more prevalent then than now?
4. What caused the reduction of wildlife and extinction of some kinds?
5. What did man do toward this reduction?

6. What other things may have helped cause it?

II. Wildlife Today

1. What animals are common today?
2. Are animals valuable to man now? How?
3. Reasons for preserving animal life.
4. Are animals more useful or harmful to man today—the farmer particularly?
5. Should we try to restore and conserve wildlife today? Why?
6. How can this be done?

III. Wildlife in the Future

1. Why should we save our wildlife?
2. What can be done?
3. What is being done?
4. How can children help?

"Activities during unit study:

1. Bulletin boards.
2. Finding pictures and news stories in papers and magazines relating to subject.
3. Excursions and hikes.
4. Interviews with and talks by people who may have knowledge of subject.
5. Movies and slides.
6. Studying (reading about) footprints of animals.
7. Drawing pictures of animals' homes, burrows, lodges, etc.
8. Conducting quiz programs.
9. Making graphs and charts.
10. Writing poems, songs, and plays.
11. Watching animals and birds for habits.
12. Learning to identify animals by making use of encyclopedias and other sources of information.
13. Visiting beaver dams or lodges.
14. Making bird-feeding stations.
15. Writing letters for information.
16. Studying (where to find) game laws of State.
17. Posters on conservation.

"Culminating activities:

1. Planning a program or writing a play to present to other grades, based on knowledge acquired during unit.
2. Making a scrapbook of (1) pictures

collected, (2) papers written on animals and birds assigned to individuals, (3) poems, (4) art—animal tracks, homes, etc., (5) copies of game laws, etc.

3. Making charts to show information learned about each animal studied—homes, food, interesting facts.
4. Seeing the excellent movie that fitted in with our particular unit, 'A Heritage We Guard.' This showed wildlife and our land as it was in the 1600's and its deterioration through the years up until recent times, showed concern over past carelessness, and indicated what attempts are being used to combat it. A very fine finish for our unit."

The foregoing examples of conservation education developed from within the school. State courses of study handed down will never foster the kind of learning we need in conservation, and legal compulsion will only hinder the program.

Educators must understand that the teaching of conservation is a recognition of responsibility to both present and future generations. This responsibility originates with the people and should be shared by their schools. The extent to which the local school discharges that responsibility is a measure of soundness of its program.

NICE DEAL FOR FARMERS AND U. S.—This is a story of cooperation between public agencies.

The real-estate division of the Corps of Engineers, United States Army, Chicago district, has the job of leasing to farmers some 81,000 acres of land suitable for agriculture and not currently needed for military purposes.

The object of this outleasing program is (1) to make the land available for food production, (2) to assure that the land is farmed in accordance with modern soil conservation methods, (3) to reduce Government maintenance costs, and (4) to obtain fair rental returns for the Government.

The land available for leasing has been divided into 352 tracts. For each tract a 5-year cropping plan, including all the necessary soil conservation treatments, has been prepared. Soil samples have been tested and all available research data useful in guiding the program have been assembled. Assistance of Soil Conservation Service technicians working in soil conservation districts has been utilized in making the final plans. These plans are made a part of the lease specifications and success-

ful bidders for the 5-year leases must agree to follow the conservation plan for the various tracts. Leases are granted only to responsible bidders.

Seventy thousand eight hundred and seventy-nine acres are operated under agricultural leases or permits, in accordance with a basic conservation plan. This is equivalent to 335 additional average-size Illinois farms.

This land, based on average yields, adds annually to the Nation's food supply some 526,000 bushels of corn, 11,900 bushels of soybeans, 287,000 bushels of oats, 70,000 bushels of wheat, and 16,000 tons of hay. In addition, some quantities of tomatoes, sweet corn, peas, cranberries, and even a little mint are produced.

Livestock is employed extensively as an economical means of controlling the vegetative cover. Pasture has been provided for some 52,000 head of cattle and 23,000 head of sheep. Many of these animals come from drought-stricken areas of the Southwest and, at their present rate of gain, will eventually add some 2½ to 3 million pounds of meat to the Nation's food supply.

The total annual benefits to the Government from this outleasing program in the Chicago military district is \$643,183 or \$8.50 per acre. Of this total benefit \$264,957.91 is a saving in maintenance cost that would have had to be paid for out of appropriations if this program were not in effect.

Improved public relations has been an important value stemming from this cooperative effort. In addition, this Government land is setting a good example for private landowners to emulate. Lessees have erected, at their own expense, neatly constructed cornercribs and fences and have cooperated well in mowing weeds along roadsides, to add to the well-kept appearance of the properties.

NOTES FROM THE DISTRICTS

PILOT AGROUND.—Sam Polston, work unit conservationist in the Highlands Soil Conservation District in Florida, recently helped plan the 1,200-acre ranch of C. R. Disher, retired commercial airline pilot. Disher said he had seen a lot of land from the air, but that putting capability delineations on an aerial photograph has changed the meaning of land to him. He is very proud of his capability plan, Polston reports.

KUDZU WORTH \$200 PER ACRE.—T. F. Purvis, cooperator with the Briar Creek (Ga.) Soil Conservation District, planted 40 acres of kudzu in 1942 as a part of his conservation program. Since 1946, he has averaged 2 tons per acre of high-quality hay from it. Dry weather last summer forced him to start grazing the kudzu, which provided the finest grazing he ever had. "I wouldn't take \$200 per acre for it," he said.

HUGE OUTDOOR CLASSROOM.—Conservation education from textbooks alone may soon be outmoded in the Kingsley community of the Grand Traverse (Mich.) Soil Conservation District. Picture a 640-acre classroom with 6,000 students—that's Kingsley's second annual Conservation Field Day held 2 days last spring.

Sounds big. It was big. It was the second time the event was held at this site. It will probably be staged again in 1952.

Events like this don't "just happen." You have to have a site for the event, and you have to have a worth-while purpose. To quote from the program, "This is a presentation of the conservation needs of this locality and a demonstration of the measures that can be put into practice when civic-minded people, private landowners, and governmental agencies work together." Many areas have the facilities, but Kingsley had, in addition, the civic-minded people.

Call it "Better Land Use Day" or "Conservation Field Day" or whatever you choose. We like the reasons given in the program. "The soil furnishes us with food, clothing, shelter, and a great portion of our more healthful forms of recreation. Be good to it." Let's call the purpose, then, the need for emphasis being put on the soil, our basic resource.

Probably 200 people from the area helped: Town people, teachers, farmers, farm organizations, merchants, local agencies, State and Federal agencies, everyone with something to contribute. Conservation agencies, the local soil conservation district, and others, were glad to cooperate. Conservation education is an important part of their jobs, and, after all, you don't get a chance to reach 6,000 people very often and in such ideal setting.

The Kingsley School Forest, first started in 1930, and the Certified Tree Farm of Howard Dunn constituted the 640-acre classroom. By foot it would have taken a good half day to cover the 4 miles to reach all demonstrations. But with 15 farm tractors and trailers, each hauling around 30 persons, it was possible for everyone to ride around and take in the sights. In fact, several workers detected people making the trip a second or third time.

There were 47 stops. There were virgin timber, reforested areas, and cleared land—land that man had attempted to farm. From stop to stop it was a continuous story of tree-seedling production to timber products and utilization; from tree planting to timber harvest, including demonstrations of fire fighting, laminated rafter construction, boat building and maple-syrup production. Tree identification, site selection, insect and disease control, and deer damage were all included. Recreational uses of the area, its value for camping, fishing, hunting, and trapping were emphasized by demonstrations of fly and bait casting, archery, the safe use of firearms, and model Boy Scout camps. No phase of conservation education was neglected.

When you know that perhaps two-thirds of those attending were school children who came by school bus and accompanied by teachers, you realize the lessons that can be opened up in future school work, capitalizing on the impressions that the children must have picked up on their tour. Conservation education from books alone is an inadequate approach in the Kingsley area.

Kingsley folks expect other areas in the State to hold similar events.

—W. S. HARRISON and GUY SPRINGER



TEN MAGNIFICENT YEARS.—The Sugarloaf Soil Conservation District, in Nebraska, recently observed its tenth anniversary.

The eighteenth district to be organized in the State, it stands today with 94 percent of the privately owned land under conservation plans developed by SCS in cooperation with the district. Its board of supervisors manages 91,000 acres of federally owned lands.

When the landowners in the Sugarloaf district took advantage of the State law permitting its organization 10 years ago, not a vote was cast against it. Its name comes from Sugarloaf Butte, a widely known landmark. It includes 225,335 acres in northern Sioux County and northwestern Dawes County. The federally owned acreage was bought during the submarginal land-purchase program in the 1930's and has since been developed for grazing.

First supervisor was Frank Arner of Crawford, appointed by the State Soil Conservation Committee as required by State law. His first job was to set up machinery for election by the people in the district of the other four members of the board of supervisors. C. W. Golden of Crawford, Charles Ferguson of Whitney, A. L. Schnurr of Harrison, and Jacob Wasserburger of Montrose were elected.

Theirs has been the job of administering the affairs of the district since then. Each was returned to office as his term expired, showing the people's confidence in their leadership. Four serve without pay, except for a small mileage fee. Schnurr, secre-

tary-treasurer, is paid a small salary to keep the district's books and do the clerical work.

These men made arrangements with the Soil Conservation Service for technical aid, and with other groups and agencies that could help.

Only a few years after the soil conservation district was organized, the Soil Conservation Service had about finished the improvement work needed on the Federal land. It was ready to aid in the establishment of stable livestock enterprises. The district supervisors took on the job of managing the land—settling preference rights, granting grazing privileges, collecting the grazing fees, maintenance of watering places, and so on. The SCS supplies the technical advice concerning the management.

These were the first soil conservation district supervisors in the United States to assume this sort of responsibility. Some idea of the size of the land-management job is indicated by the fact that last year the supervisors paid \$10,182 to the Treasurer of the United States for grazing fees.

By 1946, the supervisors faced the problem of providing special equipment for use by district co-operators in putting their conservation plans on the land. The board bought a crawler-type tractor and 4-cubic-yard scraper, and hired Clyde Mills as operator. The equipment and operator were supplied to the co-operators at an hourly rate. Mills is still the operator.

Also in 1946, the Sugarloaf Soil Conservation District was a winner in the *World-Herald* soil conservation achievement program. The award was \$500, which was promptly invested in a bulldozer attachment for the tractor. Later, a cement mixer and grader were bought. Today, all equipment is paid for—paid entirely out of earnings on conservation jobs.

Twice, the district co-operators were the focal point in pest control. They got the cooperation of the United States Fish and Wildlife Service in the control of prairie dogs. They also got the cooperation of the Bureau of Entomology in a grasshopper-control program. The supervisors obtained the grasshopper bait for resale at cost to district co-operators, and two Bureau of Entomology employees instructed the farmers and ranchers in its proper use.

Today, the district lists among its assets equipment with a present value of \$9,000 and over \$4,000 cash. But much greater are the assets resulting from the co-operators' achievements in putting the district program into action.

GRASS DIGGINGS THE FASHION.—Log rollings, where neighbors gathered to help clear land and burn logs, are mostly of the past. But grass diggings, where neighbors gather to dig grass to plant pasture, are gaining popularity down around Tallahassee, Fla.

It started 3 years ago with a community digging in which Coastal Bermuda-grass stolons were planted on the farm of Oscar Hurst. Hurst's farm furnished stolons for planting on other farms in another community digging. Chairman B. C. High of the new Wakulla Soil Conservation District rounded up eight neighboring farmers, who obtained planting stock through the courtesy of Hurst and the Ochlockonee River district. In a similar operation, Bishop Holifield, Negro technician, arranged a pangolagrass digging for Negro co-operators of the Ochlockonee River district on the farm of the Florida A. & M. College for Negroes.



PACE SETTING PAYS OFF.—What conservation farming means to hill farmers is demonstrated in the changes 6 years have brought at Ralph Jennings' dairy farm in Allegany County (N. Y.) Soil Conservation District. On land that did not produce enough hay and pasture for 12 head in 1945, he is producing more pasture and hay than he can use for a herd of 26 cattle. Additionally, he has control of erosion, is reestablishing the fertility of his farm, and is saving his down-hill neighbor at least \$500 a year through improved crops and elimination of damage from water that came flooding down from the Jennings farm.

Jennings has removed hedgerows and stone piles, built diversion terraces, established contour strips, and improved pasture by leveling and brush and stump removal. Five years ago he had to pasture his wood lot. Today his cattle are fenced out. The diversion terraces have stopped the washing of soil, and on them he is producing the best hay on his farm. He's selling, instead of buying hay. His complete conservation plan is about 100 percent established.

Twelve hundred other Allegany farmers are operating the conservation way, following the pattern set by Ralph Jennings and other pace-setters.

FLYING TEACHERS

(Continued from page 74)

On the air tour the pilot flew the DC-3 at a low altitude so that the conservation students could better see the land beneath. Gullies and eroded spots showed up plainly, as did the dark green areas of fertilized and well-managed soil. The tour covered 120 miles of circling the district.



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General Information

A new truck and two new tractors were among the many machinery casualties of the great flood which laid the valley low. See the article in this issue, "The Complete Watershed Program in Flood Control."

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S58

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